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Title : REACTIONS OF WESTERN GRAY WHALES TO SEISMIC SURVEYS OFF NORTHEASTERN SAKHALIN ISLAND, RUSSIA

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Abstract : The critically endangered western gray whale population, believed to number ≤ 100 , summers and feeds off the northeastern coast of Sakhalin Island, Russia. Offshore oil and gas development on the continental shelf off northeastern Sakhalin Island, including regions in close proximity to the only known feeding ground for western gray whales, has steadily increased in recent years and is now expanding at a rapid pace. The nearly constant exploration, development and production activities off Sakhalin, including seismic surveying and notable increases in aircraft and shipping traffic, have introduced new sources of potential disturbance to feeding gray whales. During summer 2001, seismic surveys were conducted during a six-week period in known gray whale foraging areas off Sakhalin Island. To test the hypothesis that the distribution of gray whales on the feeding ground would shift away (i.e. to the south) from nearby seismic surveying, systematic one-hour scans were conducted to determine whale distribution and number of whales within the study area. These scan data were then analyzed in relation to pre-seismic, seismic, and post-seismic periods. Results showed an increased number of whales (56.7%) utilized the the southern portion of the study area during the seismic period as compared to the the pre-seismic period (30.3%); documenting a shift in overall distribution away from the seismic survey vessels. Within several days after completion of the seismic surveys, whales shifted back to their more typical northerly distribution as reflected by the decline in the mean number of whales counted per scan (seismic period = 20.3; post-seismic period = 8.6). These findings suggest that seismic survey activities limited access to important feeding areas for most whales. Disruption of feeding in preferred areas could have major negative effects (both short-term and cumulative) on individual whales, their reproductive success, and the population as a whole.